We claim:

1. An electron-emitting device comprising:

an emitter electrode structure;

a barrier layer disposed at least partially over the emitter electrode structure; and

a catalyst layer disposed at least partially over the barrier layer, the catalyst layer for forming a plurality of electron-emissive elements electrically coupled to the emitter electrode structure.

2. The device of claim 1, wherein the emitter electrode structure comprises an emitter electrode and a resistive layer disposed over the emitter electrode.

3. The device of claim1, further comprising:

a plurality of electron-emissive elements formed using the catalyst layer, the electron-emissive elements electrically coupled to the emitter electrode structure.

4. The device of claim 3, further comprising:

wherein the catalyst layer and the barrier layer each include at least two laterally separated sections, each section of the catalyst layer and the barrier layer electrically coupled between a number of electron-emissive elements and the emitter electrode structure.

5. The device of claim 1, wherein the emitter electrode structure comprises an emitter electrode and a resistive layer disposed over the emitter electrode, the device further comprising:

a dielectric layer overlying the resistive layer;

a gate electrode overlying the dielectric layer above the resistive layer; and

a plurality of electron-emissive elements electrically coupled to the emitter electrode structure and situated in a composite opening extending through the gate electrode and the dielectric layer.

6. The device of claim 1, wherein the electron-emissive elements comprise carbon nanotubes.

7. The device of claim 1, wherein the barrier layer comprises titanium.

8. The device of claim 7, wherein the barrier layer comprises titanium tungsten.

9. The device of claim 7, wherein the barrier layer comprises titanium nitride.

10. The device of claim 1, wherein the barrier layer comprises tungsten.

11. The device of claim 10, wherein the barrier layer comprises tungsten nitride.

12. The device of claim 1, wherein the barrier layer comprises tantalum.

13. The device of claim 12, wherein the barrier layer comprises tantalum nitride.

14. The device of claim 1, wherein the barrier layer comprises chromium.

15. The device of claim 1, wherein the barrier layer comprises molybdenum.

16. The device of claim 1, wherein the catalyst layer comprises a conductive metal selected from a group consisting of: nickel, iron, cobalt, an alloy of nickel, an alloy of iron, and an alloy of cobalt.

17. A field emission display device comprising a matrix of pixels, each pixel having one or more colors, wherein for each color of each pixel the display device comprises:

a phosphor; and

an electron-emitting device as described in any one of claims 1 through 6, the electron-emitting device for exciting the phosphor.

18. A method for forming an electron-emitting device, the method comprising:

forming a resistive layer over at least a portion of an emitter electrode;

forming a barrier layer over at least a portion of the resistive layer;

forming a catalyst layer over at least a portion of the barrier layer, the catalyst layer for forming a plurality of electron-emissive elements; and

forming the electron-emissive elements using the catalyst layer, the electron-emissive elements electrically coupled to the emitter electrode structure.

19. The method of claim 18, wherein the barrier layer and the catalyst layer are formed to each include at least two laterally separated sections, each section of the catalyst layer and the barrier layer electrically coupled between a number of electron-emissive elements and the emitter electrode structure.

20. The method of claim 18, wherein the electron-emissive elements comprise carbon nanotubes.

21. The method of claim 18, wherein the barrier layer includes a metal selected from a group consisting of: titanium, titanium tungsten, titanium nitride, tungsten, tungsten nitride, tantalum, tantalum nitride, chromium, and molybdenum.

22. The method of claim 18, wherein the catalyst layer comprises a conductive metal selected from a group consisting of: nickel, iron, cobalt, an alloy of nickel, an alloy of iron, and an alloy of cobalt.

23. A method for forming an electron-emitting device having a cathode structure that includes, electrically coupled in series, an emitter electrode, a resistive layer, and a plurality of electron-emissive elements, the method comprising:

before forming the electron-emissive elements, disposing an electrically conductive barrier material on at least a portion of the resistive layer; and

before forming the electron-emissive elements, disposing a catalyst material on at least a portion of the barrier material so that at least some of the catalyst material is physically isolated to the resistive layer.

24. The method of claim 23, wherein the electron-emissive elements comprise carbon nanotubes.

25. The method of claim 23, wherein the barrier material includes a metal selected from a group consisting of: titanium, titanium tungsten, titanium nitride, tungsten, tungsten nitride, tantalum, tantalum nitride, chromium, and molybdenum.